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UNSCIENTIFIC NOTES ON THE TIGER.

BY J. D. INVERARITY.

(Read at the Society's Meeting on 9th April, 1888.)

THE title of this paper will have given you notice that I do not make any pretensions to the learned and scientific attainments of the gentlemen who have instructed and amused us by the able papers hitherto read at our monthly meetings. One of the chief pleasures of shikaring, to my mind, is the observation of the manners and customs of the animals one pursues. I keep a journal when in the jungle, so I have been able to correct my memory by reference to notes made at the time. When I was looking up materials for this paper, I was surprised to find how many small but valuable details I should have forgotten without the aid of my journal. I meant to have astonished you with some exceptionally large tigers, but as my notes show them to have been considerably smaller than I should have imagined, if trusting to memory alone, I am unable to do so. In fact, I find that I have never killed or seen killed a tiger that measured so much as 10 feet. The size of tigers gives rise from time to time to animated discussions in sporting books and in sporting newspapers, some maintaining that tigers of 11, 12 or even 14 feet have been slain, others fixing about $10\frac{1}{2}$ feet as the limit. The accepted mode of measurement is to run the tape from

the tip of the nose to the end of the tail, as the tiger lies on his side on the ground, following the curves of the body. If this method is fairly adopted, a tiger in Western India or the Central Provinces of over 10 feet will be found to be very uncommon. A large number of adult tigers will be found to be under 9 feet, and I think myself that the majority of tigers are under 9 feet 6 inches. The largest tigress, in my own experience, measured 9 feet 1 inch: they usually measure about $8\frac{1}{2}$ feet. There very probably is an occasional Chang among tigers of abnormal size, which may account for some of the exceptional measurements one reads about. If, however, one measures out 12 feet on the wall of a room and sketches in a tiger in the space measured out, one realizes that a 12-foot tiger would astonish one. Colonel Peyton, who had a very long experience in the Canara forests, mentions in his very interesting article on Tigers in Vol. 15 of the *Bombay Gazetteer* only five being shot in Canara over 10 feet, the largest being 10 feet $2\frac{1}{2}$ inches. Mr. Mulock, of the Bombay Civil Service, who has been at the death of as many tigers as any one on this side of India, tells me that to the best of his recollection he has only seen one or two over 10 feet. Mr. Sanderson in his book gives 9 feet 6 inches as the largest he killed. Captain Forsyth mentions, I think, only two over 10 feet. The usual mode of arriving at the size of tigers, though convenient, and giving one a fair general idea, is sometimes deceptive, owing to the tail (which is included in the measurement), varying in length in different animals, so that a stoutly built tiger with a short tail does not have justice done to him. The skull tells you at once whether the tiger was a large or small one. Mr. Sterndale, in his "Mammals of India," has elaborate calculations showing from the measurement of the skull what length the tiger who owned the skull ought to have been. I have here the skulls of three tigresses which measured 8 feet 9 inches, 8 feet 6 inches, and 8 feet 5 inches, respectively. You will notice that there is hardly any difference in the size or general character of the skulls. Here is the skull of a 9 feet 1 inch tiger which is much bigger in every way. The skull and frame of a tiger would, however, always be larger and stouter built than a tigress of the same length. Here is the skull of an 8 feet 9 inches tiger. Compare it with the skull of the 8 feet 9 inches tigress, and you will see the difference.

Tigers are supposed to breed only once in three years, which is unsatisfactory intelligence for the sportsman. The only reason for

this is that their cubs stay with the mother till they are about two years old; so if the tigress should lose her cubs she would, no doubt, breed again sooner. The period of gestation is said to be thirteen weeks: from two to four cubs are usually brought forth. A litter of five cubs is said by Colonel Peyton (*ubi supra*) to be not uncommon. The late Major Neill, of the Central India Horse, told me of one case in his own experience of six unborn cubs being found in a tigress that was shot. The tigress, however, rarely rears to maturity more than two cubs, and sometimes only one. I have never seen myself a tigress accompanied by more than two well-grown cubs, nor have I seen tracks of a larger number with their mother. Col. Peyton (*ubi supra*) mentions three instances of tigresses having been shot in Canara, when accompanied by a well-grown family of five, and I have heard of more than one authentic instance of four cubs coming out in a beat with their parent. The cubs remain with their mother until they are about two years old. There is no particular breeding season, as young cubs have been found at all periods of the year; but I believe that most of the cubs are born from February to May. I daresay my belief is wrong, but it is based on the age of cubs one sees in the hot weather, the size of their tracks one sees then, and the likelihood that they would be born at a time of the year when the food of the mother is more easily procurable. In the months of March, April, and May the water supply of a country is much diminished, and the deer and hog, which are the natural food of the tiger, necessarily congregate where the water remains, and are not so widely scattered as they are at other seasons; and it follows that the tigress has then less trouble in hunting for her prey than she otherwise would have. Wild animals and birds in Europe are born and hatched at a season when a plentiful supply of their food is produced by Mother Nature. I am not sure, however, that this holds good in the East, where there is no severe cold climate or winter to contend with.

No one seems to know to what age a tiger will live. Individual tigers are well-known to the native shikaris, who have, however, no idea of time as measured by years. They don't know their own ages, and no reliance can be placed upon their accuracy in anything relating to time. The only reliable information I have on the subject is from Colonel J. Hills, of the Engineers, who informed me that he shot a tiger that had been wounded by the district officer of the time, sixteen years before, by an Enfield bullet in the neck.

The bullet was found by Colonel Hills still in the animal. This tiger had one foot smaller than the others, and so his tracks could always be easily identified. He was an adult tiger when hit with the Enfield bullet, and so must, at any rate, have been 19 or 20 years old when shot by Colonel Hills. What is the weight of a tiger I have no personal knowledge. Some years ago, in *The Field*, the weight of a 9 feet 8 inches tiger was given as 355 lbs., and of a 9 feet tigress as 235 lbs., from actual weighments, which is about 25 stone for a tiger and about 17 stone for the lady. Mr. Sanderson, in his delightful and accurate book "Thirteen Years among the Wild Beasts of India," says a very bulky well-fed male weighed by him was 349½ lbs. Captain Forsyth, in his "Highlands of Central India," one of the best written books about Indian sport, says that the ordinary tiger weighs 450 or 500 lbs., and that one he shot must have touched 700 lbs. at least. This animal, however, was not weighed. I believe that the majority of tigers are under 350 lbs. I judge, however, entirely from comparison with other animals, such as deer, the approximate weight of which is known to me. It is well known that a tigress teaches her cubs to kill by disabling the animal attacked, so that it cannot escape from the onslaughts of the cubs. Two years ago, I came on an instance of this where the kill was an old bull nilghai, who had been wending his way down a shallow nullah to a water hole. The tigress had been lying in wait about twenty yards from the water behind the stump of a dead tree; there was no cover where she lay; her seat was easily seen in the sandy soil. She had two cubs, about ten months old, with her, but there were no signs of their having lain near her, so, I presume, they were hidden in the jungle until the proper time came. The nilghai had passed within three yards of the tigress, who had rushed out and seized him by the right foreleg just below the shoulder, breaking the bone. The cubs then, I think, had joined in and killed by tearing at the flanks and disembowelling the poor brute. I was out stalking and came on the spot by chance, about 9 A. M. Both hind quarters of the nilghai had been completely eaten. There were no marks on the neck or forequarters except the one grip of the tigress on the right leg. It had been eaten on the spot where it was killed. I took a photograph of the nilghai. You will see there is no mark on the throat, the usual place of seizing. The face of the animal has also a peculiar painful expression, which one never sees on an ordinary kill. The branch of a tree that you



Mintern Bros. lith. London.

BULL NIELGAI KILLED & PARTLY EATEN BY TIGRESS & TWO CUBS.

(from a photograph taken by Mr. J. D. Inverarity.)



NIELGAI AFTER 2ND MEAL BY TIGRESS & TWO CUBS.
(from a photograph taken by M^r. J. D. Inverarity.)

Mintern Bros. lith. London.



HIND LEG OF BULL NIELGAI HAMSTRUNG BY A TIGER.
(from a photograph taken by Mr J. D. Inverarity.)

Mintern Bros. lith. London.

see in the photograph lying almost across the kill was freshly broken off a tree on the bank of the nullah. It appeared to me that after eating the tigress had ascended the bank and reared herself up on her hind legs, resting her forequarters on the branch, which broke with the weight. The tigress and two cubs were sitting close by in the water hole, and gave vent to a series of growls as I approached, but finding I was not intimidated, sneaked off up a kind of ditch overgrown with grass without my seeing them, although I was within fifteen yards. They returned to the nilghai the next night, and finished it. I have here a photograph of the nilghai after the second night. You will see nothing is left except the head, bones of the legs, ribs, and some skin. You will also perceive from the surroundings that the carcase had been dragged to another spot before being eaten. I also returned at daylight, but the tigers had then left. I shot the tigress late in the afternoon. She vomited up large strips of the nilghai's skin in a perfect state, not digested at all, and as I shot her at least twelve hours after she had been eating, it appears that skin is not easily digested. One of the cubs, about the size of a panther, was also killed; the other escaped. Only last week when out stalking in the Easter holidays, I found the carcase of an old bull nilghai that had escaped from a tiger, but died of the wounds inflicted on it, probably from blood-poisoning. It had been dead about a day. The tiger had seized it by the hind leg immediately above the hock, hamstringing the leg. He had also bitten through the other hind leg in the same place, but had not hamstrung this leg. The nilghai had somehow got away. I could not find any other marks of the tiger on it, although there had probably been some scratches with the claws, as the vultures had made a few holes where the skin had, no doubt, been gashed. The holes made by the tiger's teeth were full of maggots, bred while the animal was alive, the rest of the carcase being comparatively fresh. I took a photograph of the hind leg, which shows clearly the teeth marks immediately above the hock. You will see they are too large and too wide apart to have been caused by a panther. The large hole shown in the picture in the thick part of the leg had been made by vultures, of which there were many sitting about waiting until decomposition had proceeded far enough to enable them to get through the tough skin. I fancy this tiger must have been a young inexperienced one, or the nilghai would not have got away. Opinions differ as to the

mode in which a tiger usually kills his prey. Some say that he seizes by the throat, others by the nape of the neck from above. I have examined scores of kills with special reference to this point, and in every case (except one) the throat had been seized from below. The exception was an old boar that had been seized by the back of the neck from above. I also once came across a man that had been seized by a man-eater by the nape of the neck. Strange to say he recovered. He was the last of a single file of several villagers, and on the tiger seizing him, his comrades turned and drove the tiger off him. He was insensible, and had no idea when he came to his senses what had happened to him. He eventually recovered. The victim being seized, all authorities agree that the neck is dislocated by a wrench. I have never been able to understand how this dislocation takes place. A wrench, one would suppose, would throw the animal over before dislocation could occur. I have always doubted whether dislocation does take place. I have never noticed any external appearance of it, but I don't place much reliance upon that, as the body is generally stiff before one gets to it. Actual dissection, which one is not usually inclined for under a hot sun, I have never tried. The hunting leopard (the tame one) appears to me to kill by simple pressure on the windpipe; for the ones I saw did not even break the skin with their teeth, and I don't see why a tiger should not kill by that means. If any of you will get a friend to clutch your windpipe with even moderate violence, you will find it renders you quite powerless. It is by pressure on the windpipe that garotters succeed, I have always understood. On the other hand, I have seen more than one instance where adult tigers and panthers having seized have failed to kill, when they have had it all their own way, and not been frightened off. This I cannot account for, as the wounds in the throat in such cases have appeared to be the usual ones. It is only by accident, if at all, that tigers in killing sever any important vein or artery. The natives will tell you that they do and suck the blood. I have never found any blood to speak of that has flowed from the throat wounds. I once heard a tiger take a bullock out of a herd within 300 yards of me and was on the spot immediately. The tiger had sneaked off, either frightened by the shouts of the herdsman, or because he heard me. The bullock was dead. Hardly any blood flowed from the wounds, which were in the usual place in the throat. Very large and powerful animals,

like the bull bison and bull buffalo if attacked at all, are, I think, in the first instance, attacked from the rear with a view to disable them. A few years ago I shot a very large solitary bull buffalo that had been attacked by a tiger in this way a short time before. The tiger had leapt on his quarters, fixing his claws on both sides of the root of the tail, and also fastening on with his teeth. There were long cuts down both hind legs made with the claws. The wounds were healing well, and the buffalo was none the worse. Having killed, the tiger invariably according to my experience (though some writers say he occasionally begins elsewhere), begins eating at the hind quarter. Why he should do so I don't know. He polishes off one hind quarter, and generally both. Sometimes he leaves the stomach and intestines in *statu quo*. Sometimes he will remove the stomach and make a neat parcel of it a little on one side. If a tiger and a tigress are together when they kill, they finish an ordinary-sized animal at one meal, leaving only the head. In such a case, I fancy the second one eats at the fore quarter. I have a photograph here of a bullock killed and partly eaten by two panthers. One, you see, has eaten at the hind, and the other at the fore quarters; and it is probable that tigers would do the same. On the other hand, the tigress and cubs, I told you of, all ate at the hind quarters of the nilghai. Here is a photograph of a wild buffalo calf, killed and partly eaten by a tiger; also one of a larger but tame buffalo similarly treated.

These will give you a good idea of the appearance of the dinner after the tiger's first meal. The latter photo. also clearly shows the tiger's grip on the throat when killing. With the exception of the nilghai previously mentioned, I have never seen an animal eaten where it was killed. It is always dragged a short distance, and sometimes for a considerable way, before the eating begins. It is dragged, not lifted clear off the ground. Having gorged himself, he sometimes lies up close to the kill, but as often as not, especially in the hot weather, if there are hills anywhere about, he will go a long distance from the kill before he lies up for the day. I think the reason is that in the hot weather he prefers to get into some cave, or to lie out high up on a hill side under some shady tree where he gets the breeze, rather than stop in the close hot atmosphere of low jungle. At any rate, I have frequently found them pass through very likely looking heavy jungle near the kill, and proceed long distances to hills before lying up. As a general rule, the tiger

returns to his kill the next night as soon as it is quite dark. He then finishes what is left if the kill is an ordinary bullock or deer. He never eats at the place he ate the night before, but drags it forty or fifty yards before beginning operations. If you sit up over a kill it is necessary to tie it by the fore leg to a tree, otherwise the tiger will walk off with it as soon as he arrives. This occurred to me sitting over a natural kill of a boar. The tiger picked it up and walked off without stopping a second. If you tie it, the tiger does not seem to mind, but will stop and eat. He takes about two hours steady eating to finish the forequarters of a bullock. I timed a small tigress two years ago. She came and ate for ten minutes and then went away for twenty minutes, I think to have a drink. She returned and ate without stopping for two-and-a-quarter hours. Just as the moon was getting up, she finished, and walked quietly off. Though I was within ten yards, the whole time up in a tree, I could not see at all, so did not fire. It is no use firing a random shot on these occasions. You probably only wound or miss, altogether frightening the animal out of the country. A little self-control and patience will give you a better chance another day. This particular tigress I turned out in a beat next day, but did not get a shot.

Tigers on occasions are cannibals. The male is said by the natives, probably with truth, to kill and eat the cubs. Mr. Mulock once fired at a tiger, and shortly afterwards fired at what he supposed to be the same tiger. He killed them both, but thought he had only killed one; and so one was left dead in the jungle. A third tiger came during the night and had dinner off it. This tiger also returned the next night, and had another meal. I have a photo. here of the tiger so eaten. I have read of other instances of tigers eating the dead carcase of one of their own kind, but have not seen any such instance myself. They will also eat the dead carcase of an animal they have not themselves killed. Mr. Raitt, of the Bombay Uncovenanted Service, was killed by a tiger that the evening before had fed on the body of a bear that Raitt had shot. Tigers are supposed to kill once in five or six days, and this; no doubt, is generally the case, as a tiger does not trouble himself to hunt much for a few days after a heavy feed; but if they get the chance, they will kill whenever they can. A tigress I was after last year killed, on three consecutive nights in different places, never returning to the kill. Some years ago a tigress killed on fourteen consecutive nights. She returned to the same place every night, and found a fresh bullock

tied up in the place of her old kill. We were engaged with other tigers some distance off, hence the necessity of keeping her in the neighbourhood till we arrived. There is no real cruelty in tying out baits for tigers. At any rate, few tigers would be killed without baits, and the one sacrificed saves the lives of all the other animals that the tiger would kill if he was not shot. So on the principle of the greatest happiness of the greatest numbers, tying out would be justifiable. But I also believe that animals killed by a tiger suffer little, if anything, beyond an instinctive panic for a few seconds. Dr. Livingstone has recorded in his travels in South Africa, that when he was seized by a lion, the shock produced a stupor and dreaminess in which there was no sense of pain or feeling of terror, though conscious of all that was happening, and he expresses his opinion that this peculiar state is produced in all animals killed by the carnivora, and is a merciful provision of our Creator for lessening the pain of death. I have conversed with both Europeans and natives who have been boned by tigers and panthers, and they all confirm this view. Animals, until the moment the tiger arrives, are unconscious of their fate, and the probability is that Dr. Livingstone's opinion is well founded; that at the moment of attack they get stupified and insensible to fear or pain. I once saw a bullock in a beat lie down and stretch his neck out flat on the ground, as if for concealment when the tiger approached. After the tiger had been shot, the bullock rose and began grazing. I am inclined to think that the fear of the bullock in this case was caused as much by the noise of the beat as by the presence of the tiger. A tiger sometimes kills immediately after having fed if he comes across a fresh bullock. Last year I shot a tigress that had first killed a stray bullock, about three hundred yards from one of my ties-up. Having eaten the hind quarters, the tracks led to the tie-up. This she killed and dragged away into an adjacent hill. On another occasion, after eating the tie-up, a tiger killed five buffalo calves, out of a herd of eight calves that had strayed near. They all lay close together within a space of twenty yards, and not more than 200 yards from where the tiger had been eating. All of them had been seized by the throat, and were otherwise uninjured. It is possible that the tiger in this case had been disturbed by the calves coming near where he was eating, and being annoyed, had sallied forth and killed them. But I do not think so, as I could not find any tracks returning to the kill.

Vultures take good care not to descend on a kill if the tiger is near. They perch on the trees above, and one is often led to a kill by seeing them. If they do descend on the kill, the tiger kills them if he catches them. One I found so killed seemed to have been caught and crushed with the paw. The "sledge hammer stroke of the fore paw of the tiger" one reads about, I have never come across. No kill I have ever seen bore any marks of it. Four men have been seized by tigers either in my immediate presence or when I was close by. In every case the tiger clutched them with his claws, exactly as you might clutch a person's arm with your fingers; and there was no sign of a blow further than you would expect from a violent seizure. Tigers wander immense distances during the night. They are very partial to easy going, and if there are any tigers about, one of the best places to look for their track is along the jungle roads and footpaths, to which they will sometimes keep for miles. They also roll in the dust of the roads, and take a dust bath. They don't like moving in the heat of the day; the hot ground burns the pads off their feet, and makes them quite raw. A wounded tiger I followed a whole day, had the thick leather pad of his paws completely removed from this cause, two days after he was first wounded in the hind legs. This tiger killed a bullock, and made a good meal; when shot his feet were in the state described. They are also fond of sitting in pools of water in the heat of the day. I have three times found them enjoying a cool bath. Tigers seldom climb trees. I have a photograph here of a tree in Salsette that was climbed by a man-eater. He attacked two men, one went up this tree to the fork of the right hand branch, the other escaped. The tiger went up the tree, but could not quite get to the fork where the man was. He then came down and hid in the jungle near. Poor Pandoo, for such was his name, thinking the coast was clear, descended and made tracks for his village, no doubt congratulating himself on his escape, when the tiger seized him and ate him. The inquest report stated "that Pandoo died of the tiger eating him; there was no other cause of death. Nothing was left except some fingers, which probably belonged to the right or left hand." Such was the inquest report. The above facts were stated to me by my friend Mr. Mulock, who took the photo. of the tree I have shown you. It seems extraordinary that the remains of Pandoo did not consist of more than some fingers, but I tell the tale as it was told to me.

You would think that a tiger was a conspicuous object in the jungle, but the contrary is the case. His yellow skin blends with the colours of the dried-up grass, and the black stripes correspond with the flickering shadows thrown by the stems of the grass, leaves and branches of the trees, so that when the animal is motionless, it is almost impossible to see it. The real danger of following a wounded tiger on foot is the difficulty of seeing the brute in time for action.

Darwin is inclined to attribute the handsome appearance of the tiger to sexual selection, and considers the theory that its colour is intended as a means of concealment unsatisfactory, and he instances the zebra (who lives on open plains) as an animal, whose stripes can be of no use for that purpose. It is, however, certain that every wild animal, however conspicuous its colours and appearance may be when seen in Zoological gardens, is extremely difficult to make out when motionless in its native wilds; and I have little doubt that a zebra on his native plains would be found not to be so visible an object as at first sight might seem to be the case. At all events, if a tiger remains perfectly still, the odds are you will walk right up to him without seeing him. The younger tigers are handsomer than the older ones; the coats of the latter are less vivid in colour and have a faded appearance.

Natives have many pleasing delusions about tigers. They believe that the ghosts of a man-eater's victims ride on his head, warn him of danger, and point the way to fresh victims; and, in one instance I heard of where a shikaree had been killed by a man-eater, the general opinion was it was no use to try for the tiger, as the ghost of the shikaree was up to all the dodges and would infallibly warn the tiger. They also think that you get the courage of the tiger by eating its flesh; that unless the whiskers are singed off, the spirit of the tiger will haunt you, or (as I read in an old book) you will be turned yourself into a tiger in the next world; that the fat of a tiger is a specific for rheumatism, that the number of lobes in the liver correspond with the number of years the tiger has lived, that the claws if worn are a charm against the evil eye. The small bone embedded in the muscles between the shoulder and neck of a tiger is also a charm. This bone is a rudimentary clavicle or collar-bone.

In some places, too, there is a superstition that God allows the tiger one rupee a day for his food, so that if he kills a bullock worth Rs. 5, he won't kill again for five days. If it is worth Rs. 10 he won't kill again for ten days, and so forth. I have also read that

the possessor of the whiskers of a tiger obtains unlimited power over the opposite sex, but I cannot from personal experience vouch for the truth of this statement. I will now wind up this rather desultory paper by showing you the photo. of two tigers with their skins taken off. My lady friends tell me this is a nasty one, but nasty or not, it gives you a very good idea of the immense muscular power of a tiger's forearm, and reminds one of the saying that beauty is only skin deep.

NOTES ON THE ORIGIN OF THE BELIEF IN THE BIS-COBRA.

BY J. A. DA GAMA, L.M., K.C.J.C.

(*Read at the Society's Meeting on 7th May, 1888.*)

I HAD the pleasure some time since to listen in these rooms to a very interesting paper by Mr. Vidal on the *Bis-cobra*. Mr. Vidal, supposing that the *Bis-cobra* belonged to some one of the lizard families, and that it was a very poisonous lizard, or, according to some, that it was twice as poisonous as the *Cobra-de-Capello*, says that such an animal as the *Bis-cobra* never existed, because there has not yet been found a poisonous lizard in India. The more one studies the subject on the lines Mr. Vidal takes, the more one feels inclined to yield to the belief that there never has been such an animal in existence, and the descriptions given of it by the natives are a myth. But looking at the subject in a different light, I think that there exists an animal which, in the 16th century, had the name of *Bis-cobra*, but which subsequently came to be known, both scientifically and popularly, by other names, and which is neither a cobra nor a lizard.

When we desire to verify accounts of facts sent down to posterity by tradition, we should not criticise them merely through the improved means of investigation which have been placed in our hands by recent discoveries. It is necessary to transport ourselves to that period of time, when those facts are supposed to have occurred, and we should examine them by having regard to the amount of the information which was available to the people then living, and to various other circumstances which probably may have influenced the